

ABSTRACT OF THE DISCLOSURE

The present invention intends to provide a solid oxide fuel cell having a supported electrolyte film, which shows sufficiently high reliability, yields a high output, and exhibits high output power density per unit volume. The present invention is characterized by use of a first cermet comprising catalyst and a second solid electrolyte, which has a bending strength of more than 500 MPa and exhibits oxide ion conductivity, for a fuel electrode substrate in an SOFC having a supported electrolyte film equipped with an electrolyte-electrode assembly that is made by bonding the fuel electrode substrate and an air electrode on both sides of an electrolyte film consisting of the first solid electrolyte capable of exhibiting oxide ion conductivity. As a preferred embodiment, stabilized zirconia containing 2 to 4 mol% yttria or 3 to 6 mol% scandia is preferred for the second solid electrolyte. More particularly, an interlayer comprising the second catalyst and the third solid electrolyte, which shows oxide ion conductivity of more than 0.1 S/cm at 800 °C, is preferably interposed between the electrolyte film and the fuel electrode substrate.

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